

# PATENT COÖPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

To:

see form PCT/ISA/220

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220		<b>FOR FURTHER ACTION</b> See paragraph 2 below	
International application No. PCT/GB2004/000286	International filing date (day/month/year) 26.01.2004	Priority date (day/month/year) 24.01.2003	
International Patent Classification (IPC) or both national classification and IPC E21B21/10, E21B23/00			
Applicant SMITH INTERNATIONAL, INC.			

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, Inventive step and Industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, Inventive step or Industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the International application
- ☒ Box No. VIII Certain observations on the international application



**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

<p>Name and mailing address of the ISA:</p> <div style="text-align: center;">  </div> <p>European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465</p>	<p>Authorized Officer</p> <p style="text-align: center;">Tompouloglou, C</p> <p>Telephone No. +49 89 2399-2077</p> <div style="text-align: right;">  </div>
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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/000286

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material:  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing:  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/000286

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**Box No. II    Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

**see separate sheet**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/000286

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**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

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The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
- ☒ claims Nos. 13

because:

- ☐ the said international application, or the said claims Nos.     relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos.     are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 13
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
  - the written form                      ☐ has not been furnished
  - ☐ does not comply with the standard
  - the computer readable form       ☐ has not been furnished
  - ☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or  
Industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	2,3,8,9
	No: Claims	1,4-7,10-12
Inventive step (IS)	Yes: Claims	2,3
	No: Claims	1,4-12
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

**2. Citations and explanations**

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**POINT II**

If the priority were proven to be invalid, US-A-20040011566, US-A-20040007361 would be pre-published relevant documents to be considered for the further examination.

**POINT III**

In contrast with the requirement of Rule 6.2(a) PCT, claim 13 relies entirely on the drawings.

**POINT IV**

**1. D1: GB-A-2377234 discloses**

A downhole apparatus (2) for selectively isolating the interior of a downhole assembly from the exterior thereof, the downhole apparatus comprising: a body (4) defining a longitudinally extending bore and incorporating a wall having at least one aperture therein for providing fluid communication between said bore and the exterior of the downhole apparatus; a piston (42) located within the body and slidable longitudinally therein so as to allow movement of the downhole apparatus between an open configuration, in which said at least one aperture is open to permit fluid communication between said bore and the exterior of the downhole apparatus via said at least one aperture (40), and a closed configuration, in which said at least one aperture is occluded by the piston to restrict fluid communication between said bore and the exterior of the downhole apparatus via said at least one aperture; a control groove (52) and a pin (86) received within the control groove for determining whether or not a longitudinal movement of the piston in a given direction will move the downhole apparatus between open and closed configurations; and a control member (see claim 1 or one of the further control pins 86) located between and movable relative to the body and the piston, the control groove being defined in one of the piston and control member, and the pin being provided on the other of the piston and control member (see fig. 1a, 5a, 9a); wherein means are provided (see p. 9, l. 19-25) for constraining movement of the piston relative to the body to longitudinal movement only.

Therefore D1 discloses the subject-matter of claim 1. Similarly (see figures) it discloses the subject-matter of claims 4-7, 10-12.

Also D0 (see particularly control mandrel (member 542 between piston 550 and body 502) already acknowledged in the description discloses the subject-matter of claims 11, 12

2. Collets 128,180,608,516 / 74 / 88 are described in D0 / D2: US-A-6401822/ D3: US-A-4276931 as providing the same advantages as in the present application. The skilled person would therefore regard it as a normal option to include this feature in the circulating sub described in document D1 in order to solve the problem posed.
3. The problem to be solved by the present invention as defined in claim 2 may be regarded as simplifying the anti-rotation mechanism of D1. The solution to this problem proposed in claim 2, namely straight groove on one of the piston and the body, is considered as involving an inventive step (Article 33(3) PCT) because it does not require the provision of additional mechanical components. Claim 3 is dependent on claim 2 and as such also meets the requirements of the PCT with respect to novelty and inventive step.

**POINT VII**

Following points were not taken into account:

- Rule 6.3 (b) PCT: correct two part form of independent claim with regard to D1.
- Rule 6.2 (b) PCT
- Rule 5.1 (a) ii) reference also to documents D1, D2, D3 and their disclosure.

**POINT VIII**

Claim 1 includes all features of claim 11. Therefore it should have been drafted as dependent claim (see Rule 6.4(a) PCT). This entails that the aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

The last paragraph of the description expands the extent of protection (see Guidelines PCT/GL/ISPE/1, 5.30).

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB2004/000286

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 E21B21/10 E21B23/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 377 234 A (SMITH INTERNATIONAL) 8 January 2003 (2003-01-08)	1,4-7, 10-12
Y	page 6, paragraph 3 -page 11, paragraph 1; figures 1-7,9	8,9
X	US 6 289 999 B1 (DEWEY CHARLES H ET AL) 18 September 2001 (2001-09-18)	11,12
Y	cited in the application claims 1-52; figures 13-15,18-25	8,9
Y	US 6 401 822 B1 (BAUGH JOHN L) 11 June 2002 (2002-06-11)	8,9
	column 3, line 10 - line 25; claims 4,5,11	
Y	US 4 276 931 A (MURRAY WILLIAM K) 7 July 1981 (1981-07-07)	8,9
	column 3, line 9 -column 4, line 7	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*&\* document member of the same patent family

Date of the actual completion of the international search

18 May 2004

Date of mailing of the international search report

27/05/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

Tompouloglou, C



# INTERNATIONAL SEARCH REPORT

PCT/GB2004/000286

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 E21B21/10 E21B23/00

According to International Patent Classification (IPC) or to both national classification and IPC

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IPC 7 E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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☐ Further documents are listed in the continuation of box C.

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\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

18 May 2004

Date of mailing of the international search report

27/05/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3018

Authorized officer

Tompouloglou, C

**INTERNATIONAL SEARCH REPORT**

PCT/GB2004/000286

**Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☒ Claims Nos.: 13  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
3. ☐ Claims Nos.:  
because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Continuation of Box II.2

Claims Nos.: 13

Claim relying entirely on the drawings in contrast with Rule 6.2(a) PCT

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

PCT/GB2004/000286

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 2377234	A	08-01-2003	CA 2452705 A1 EP 1402147 A1 WO 03004828 A1	16-01-2003 31-03-2004 16-01-2003
US 6289999	B1	18-09-2001	GB 2381550 A ,B GB 2344122 A ,B NO 995286 A	07-05-2003 31-05-2000 02-05-2000
US 6401822	B1	11-06-2002	AU 5195801 A CA 2351159 A1 GB 2364341 A NO 20013098 A	03-01-2002 23-12-2001 23-01-2002 24-12-2001
US 4276931	A	07-07-1981	NONE	